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(71) Applicant: **Ricoh Company, Ltd.**
Tokyo 143-8555 (JP)

(72) Inventor: **Noda, Eiji**
Ohta-ku, Tokyo 143-8555 (JP)

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(74) Representative: **Barz, Peter, Dr.**
Patentanwalt
Kaiserplatz 2
80803 München (DE)

(54) **Phase change optical information recording medium, information recording method and apparatus therefor, and information erasing method therefor**

(57) A phase change optical information recording medium including: a substrate; and a recording layer which is located overlying the substrate and in which marks are to be formed to store information, wherein the substrate includes plural sessions including a first session in which pits are formed and which includes a RAM

region including a groove and a wobble signal, and a program memory area in which pits are formed and which includes position information of the first session and does not include disc ID information of the phase change optical information recording medium.

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EUROPEAN SEARCH REPORT

Application Number
EP 02 02 1453

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
P,X	EP 1 158 504 A (MITSUBISHI CHEM CORP) 28 November 2001 (2001-11-28) * the whole document *	1-6	G11B7/007 G11B19/04 G11B7/125
X	-& WO 01 18802 A 15 March 2001 (2001-03-15) ---	1-6	G11B7/24 G11B7/00
X	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 22, 9 March 2001 (2001-03-09) & JP 2001 148140 A (MITSUBISHI CHEMICALS CORP), 29 May 2001 (2001-05-29) * abstract *	1	
A	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 01, 30 January 1998 (1998-01-30) & JP 09 231018 A (SONY CORP), 5 September 1997 (1997-09-05) * abstract *	1	
A	US 5 790 482 A (TSUCHINAGA HIROYUKI ET AL) 4 August 1998 (1998-08-04) * the whole document *	7, 11, 12, 14	TECHNICAL FIELDS SEARCHED (Int.Cl.7) G11B
A	EP 0 286 126 A (HITACHI LTD) 12 October 1988 (1988-10-12) * the whole document *	7, 11, 12, 14	
A	US 5 648 952 A (AOKI IKUO ET AL) 15 July 1997 (1997-07-15) * the whole document *	15-20	
A	US 5 745 463 A (AOKI IKUO ET AL) 28 April 1998 (1998-04-28) * the whole document *	15-20	
-/--			
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19 March 2003	Examiner Benfield, A
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document		T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document	

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Application Number
EP 02 02 1453

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 5 949 747 A (MIYASHITA AKIRA ET AL) 7 September 1999 (1999-09-07) * the whole document *	15-20	
A	US 5 956 313 A (AOKI IKUO ET AL) 21 September 1999 (1999-09-21) * the whole document *	15-20	
A	WO 00 41172 A (SPRUIT JOHANNES H M ;WOUDENBERG ROEL VAN (NL); ZHOU GUO FU (NL); K) 13 July 2000 (2000-07-13) * the whole document *	15-20	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19 March 2003	Examiner Benfield, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-6

Phase change RAM-ROM disk, structure and composition of the recording layer

2. Claims: 7-14

Write-protect method and apparatus for a RAM-ROM disk

3. Claims: 15-20

Erase power calibration method and method of erasure for a phase-change optical disk.

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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19-03-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1158504 A	28-11-2001	EP 1158504 A1	28-11-2001
		US 2001038603 A1	08-11-2001
		WO 0118802 A1	15-03-2001
		JP 2001148140 A	29-05-2001
		TW 476957 B	21-02-2002
JP 2001148140 A	29-05-2001	EP 1158504 A1	28-11-2001
		WO 0118802 A1	15-03-2001
		TW 476957 B	21-02-2002
		US 2001038603 A1	08-11-2001
JP 09231018 0	A	NONE	
US 5790482	A	04-08-1998 JP 8031092 A	02-02-1996
EP 0286126	A	12-10-1988 JP 2796290 B2	10-09-1998
		JP 63253536 A	20-10-1988
		DE 3850430 D1	04-08-1994
		DE 3850430 T2	24-11-1994
		EP 0286126 A2	12-10-1988
		US 4982396 A	01-01-1991
US 5648952	A	15-07-1997 JP 8096364 A	12-04-1996
		JP 3065892 B2	17-07-2000
		JP 8124165 A	17-05-1996
		US 5956313 A	21-09-1999
		US 5745463 A	28-04-1998
US 5745463	A	28-04-1998 JP 8096364 A	12-04-1996
		JP 3065892 B2	17-07-2000
		JP 8124165 A	17-05-1996
		US 5648952 A	15-07-1997
		US 5956313 A	21-09-1999
US 5949747	A	07-09-1999 JP 10069639 A	10-03-1998
US 5956313	A	21-09-1999 JP 8096364 A	12-04-1996
		JP 3065892 B2	17-07-2000
		JP 8124165 A	17-05-1996
		US 5648952 A	15-07-1997
		US 5745463 A	28-04-1998
WO 0041172	A	13-07-2000 AU 2662800 A	24-07-2000
		BR 0004008 A	21-11-2000
		CA 2322589 A1	13-07-2000
		CN 1296610 T	23-05-2001

EPO FORM P449

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EP 1 296 315 A3

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 02 1453

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-03-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0041172 A	EE	200000543 A	15-02-2002
	WO	0041172 A1	13-07-2000
	EP	1062662 A1	27-12-2000
	HR	20000588 A1	31-10-2001
	HU	0101667 A2	28-09-2001
	JP	2002534757 T	15-10-2002
	NO	20004474 A	07-11-2000
	PL	342819 A1	02-07-2001
	TR	200002591 T1	20-04-2001
<hr/>			

EPO FORM P0469

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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